U.S. DEPARTMENT OF COMMERCE
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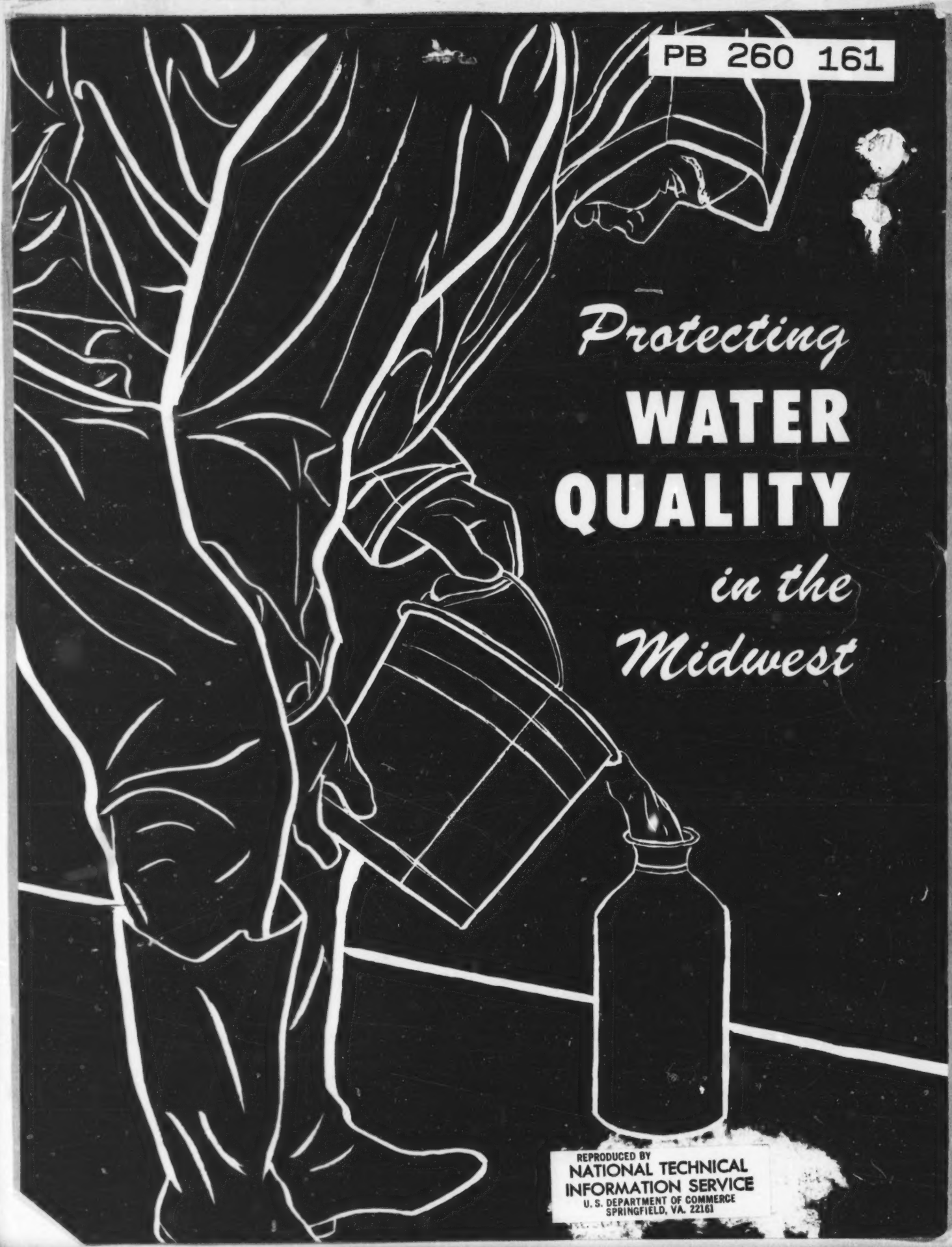
PB-260 161

PROTECTING WATER QUALITY IN THE MIDWEST

PUBLIC HEALTH SERVICE
CHICAGO, ILLINOIS

JUNE 1963

PB 260 161



Protecting WATER QUALITY *in the Midwest*

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SPRINGFIELD, VA. 22161

BIBLIOGRAPHIC DATA SHEET	1. Report No.	2.	3. Recipient's Accession No. PB-260 161
4. Title and Subtitle Protecting Water Quality in the Midwest.			5. Report Date Jun 63 6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address Public Health Service, Chicago, Ill. Div. of Water Supply and Pollution Control.			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address			13. Type of Report & Period Covered 14.

15. Supplementary Notes

A report on Water Pollution Control Activities in Region V.

16. Abstracts

This document describes procedures and facilities currently in use to ensure an effective water quality management program in the Midwest. Municipal and industrial waste treatment plants are effective in control of water quality. Data collection provides specific information for enforcing or planning comprehensive programs. International treaty obligations on boundary waters are exercised and semiannual reports are made on water sampling and monitoring. Applied research for water pollution control and enforcement activities are also a part of the water quality management program.

17. Key Words and Document Analysis. 17a. Descriptors

17b. Identifiers/Open-Ended Terms

Illinois
Indiana
Ohio
Michigan
Wisconsin
Water pollution
*Resources management
*Water quality management
Water resources

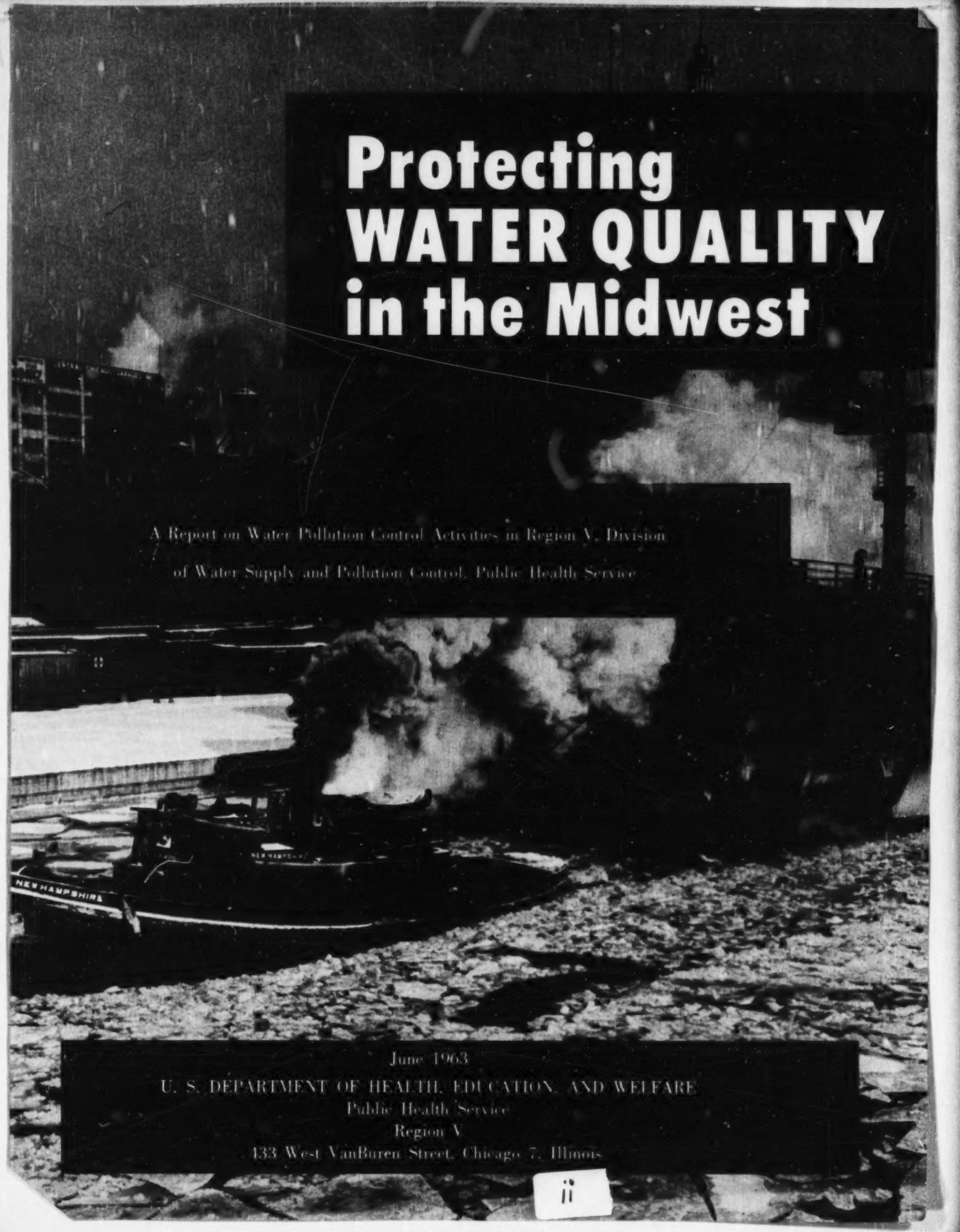
17c. COSATI Field/Group 13B

18. Availability Statement	19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 21
	20. Security Class (This Page UNCLASSIFIED	22. Price $3.50 - 3.00

The Federal Government's water pollution control program is carried on by the Department of Health, Education, and Welfare under authority of the Federal Water Pollution Control Act, (33 U.S.C. 466 et. seq.). The program is administered in the Midwest by the Department's Region V office, which is located in Chicago, Illinois. This office serves the States of Illinois, Indiana, Ohio, Michigan, and Wisconsin.

The Federal water pollution control program is a cooperative one, involving the closest coordination with interstate, state and local agencies. It provides both technical and financial assistance to states and local agencies, develops comprehensive water quality management programs, supports basic and operational research and employs enforcement measures in situations where these are needed. A major activity of the Region V office at the present time is the administration of grants for water pollution abatement.

Protecting WATER QUALITY in the Midwest



A Report on Water Pollution Control Activities in Region V, Division of Water Supply and Pollution Control, Public Health Service

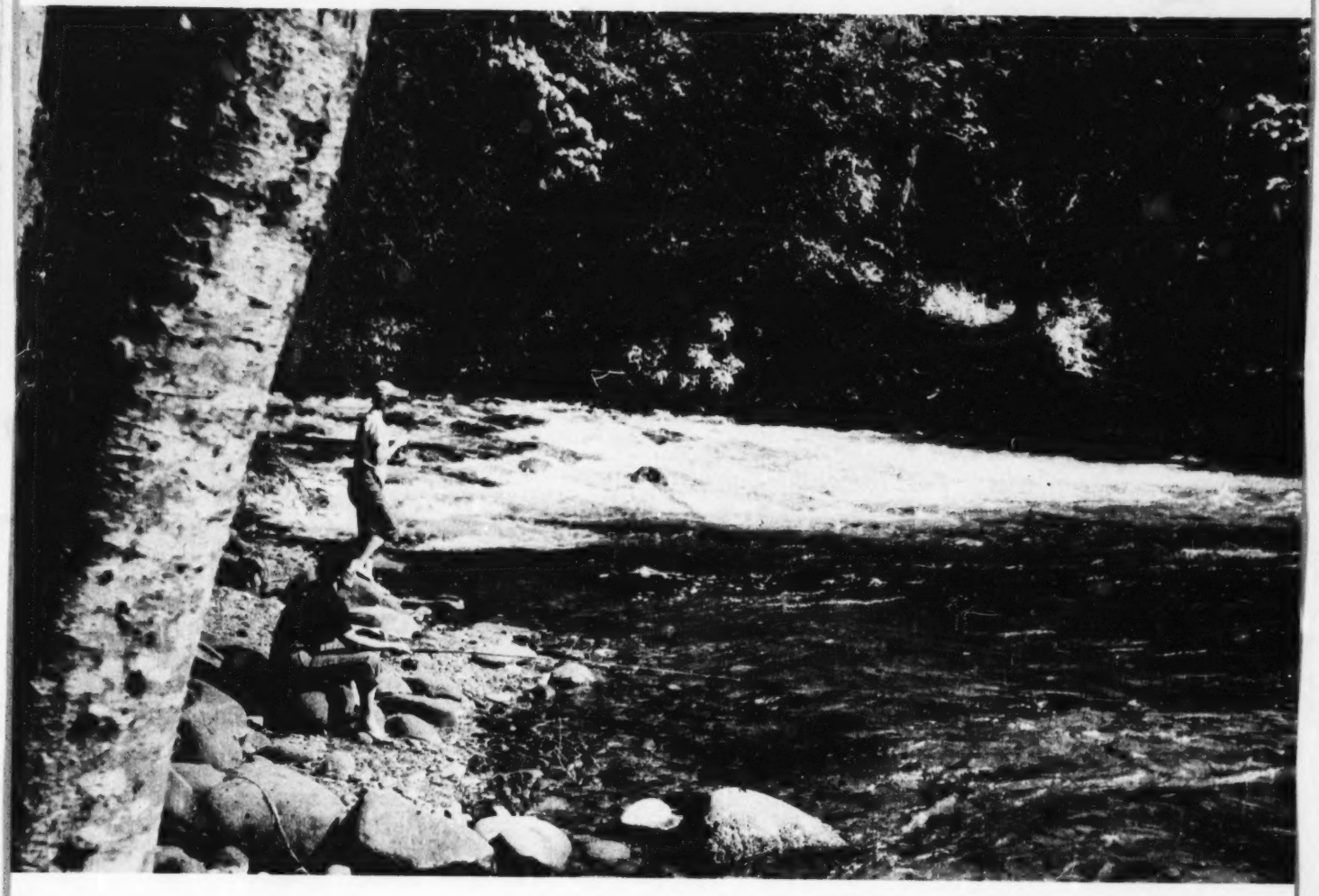
June 1963

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Region V
433 West VanBuren Street, Chicago 7, Illinois

WATER RESOURCES IN REGION V

The States of Illinois, Indiana, Ohio, Michigan, and Wisconsin encompass one of the richest water areas in the world. On its borders are the greatest source of fresh water anywhere, the Great Lakes, plus the Ohio River and the upper Mississippi River.

Even though these five states possess these enormous fresh water resources, the Midwest is not immune to the threat of a water shortage. If this comes, it will not be a shortage of water itself, but of clean water.



NEED FOR A CLEAN WATER PROGRAM

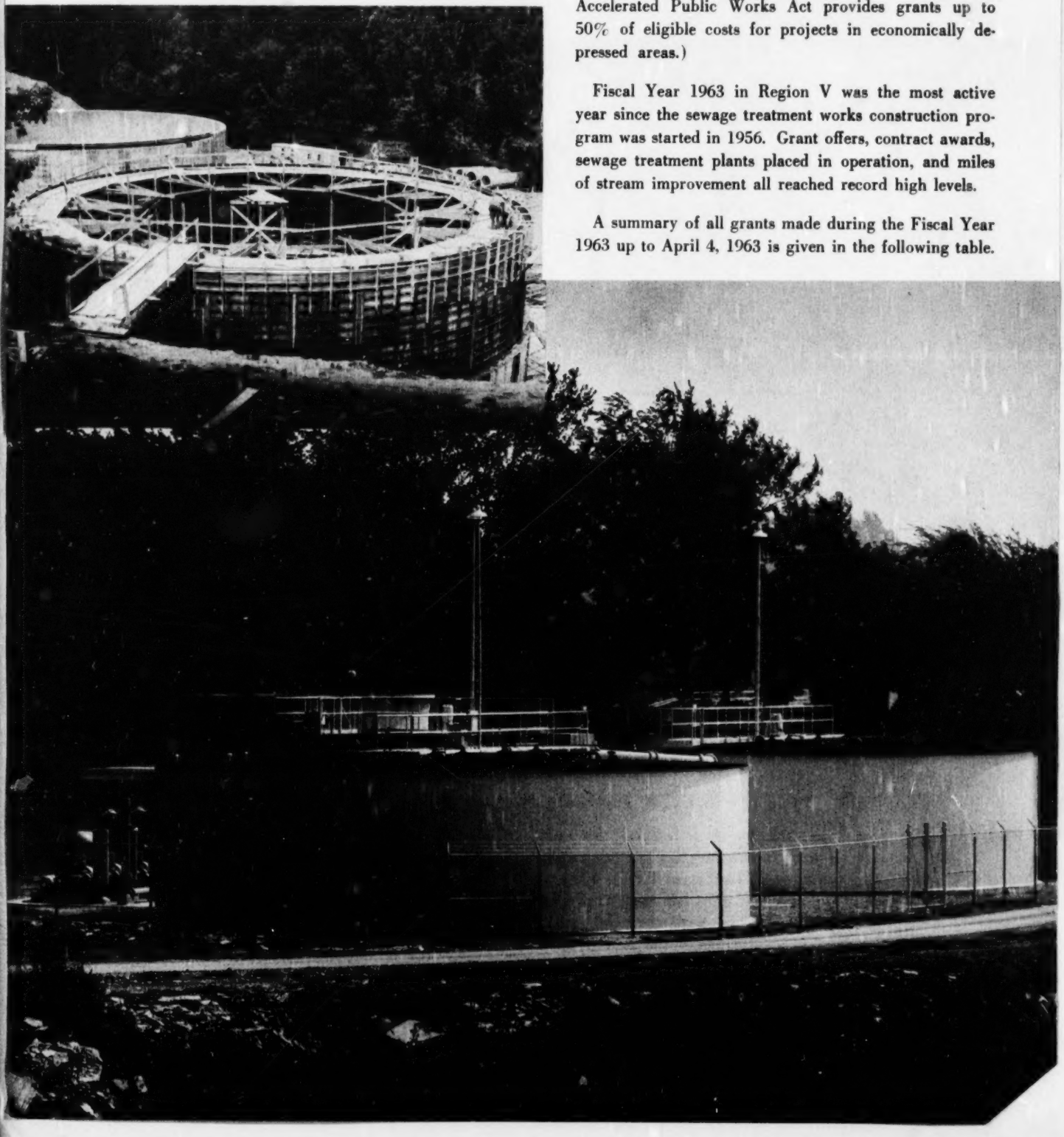
The public has been prone to assume that *water*, the natural resource most taken for granted, will be available for use forever. This assumption is subject to serious question when one considers that today water has become the Nation's Number One natural resource concern. Pollution, resulting from the ever-expanding economy and population, demands the development of an effective program for water quality management.

The danger signs in the Midwest are already evident —

- The entire flow of a major river is used and re-used almost four times before a large metropolitan center takes its share for water supply.
- Hundreds of miles of another boundary water have had serious taste and odor problems which have tainted fish flesh and affected municipal water supplies.
- Diversion of lake water is the subject of major litigation among the various Lake States.
- In the five states of Region V, $140 million is the indicated need to build municipal waste treatment plants.

CONTROLLING POLLUTION BY BUILDING TREATMENT PLANTS

The building of municipal and industrial waste treatment works is one of the most important elements in the effective control of water quality. Congress, in passing the Federal Water Pollution Control Act, recognized this fact by providing for Federal grants to assist municipalities in financing the construction of local sewage treatment work. This act provides individual grants up to 30% of eligible project costs with a maximum grant of $600,000 for any single project. (The recently passed Accelerated Public Works Act provides grants up to 50% of eligible costs for projects in economically depressed areas.)



Fiscal Year 1963 in Region V was the most active year since the sewage treatment works construction program was started in 1956. Grant offers, contract awards, sewage treatment plants placed in operation, and miles of stream improvement all reached record high levels.

A summary of all grants made during the Fiscal Year 1963 up to April 4, 1963 is given in the following table.

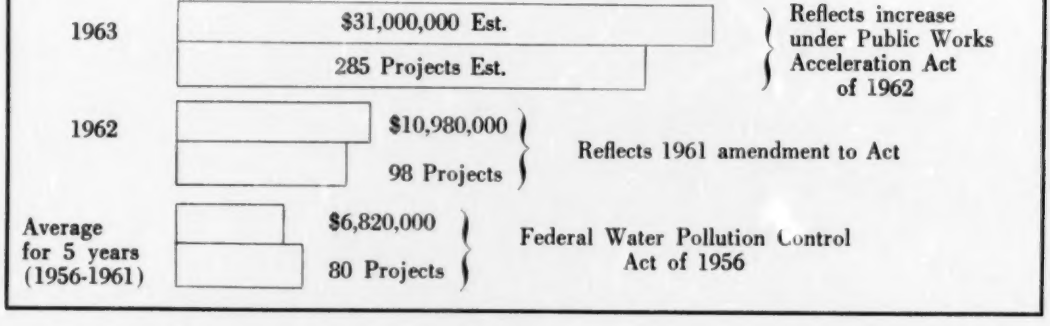
GRANTS TO MUNICIPALITIES DURING FISCAL YEAR 1963 FOR SEWAGE TREATMENT WORKS IN REGION V

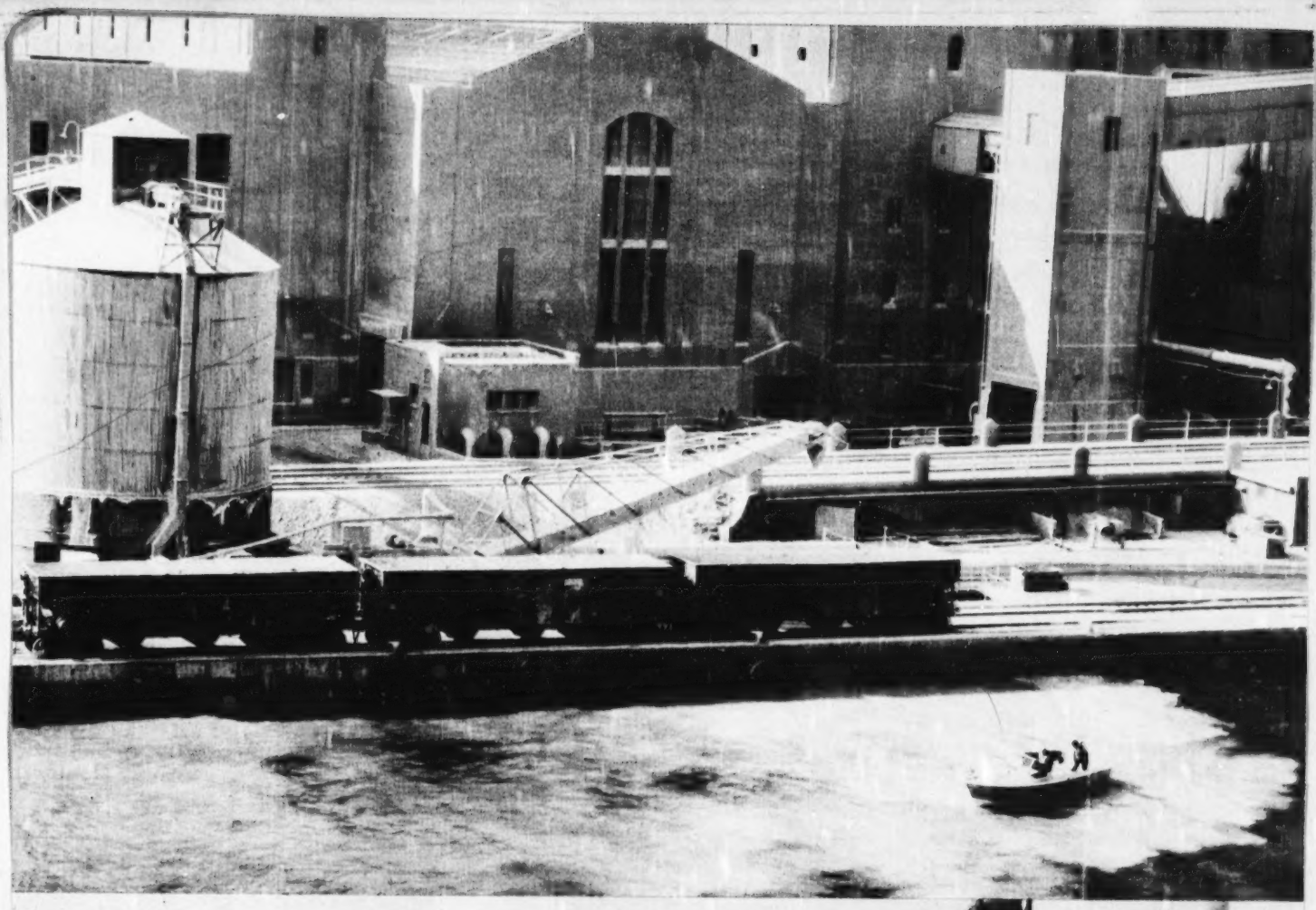
STATES	PROJECTS	ELIGIBLE PROJECT COSTS	FEDERAL GRANT OFFER
ILLINOIS	60	$14,255,110.09	$ 4,759,602.28
INDIANA	22	11,338,620.18	2,380,929.65
MICHIGAN	24	24,058,669.82	9,124,534.63
OHIO	27	15,138,782.66	3,817,343.80
WISCONSIN	39	5,922,815.11	1,695,301.83
REGION V TOTALS	172	$70,713,997.86	$21,777,712.19

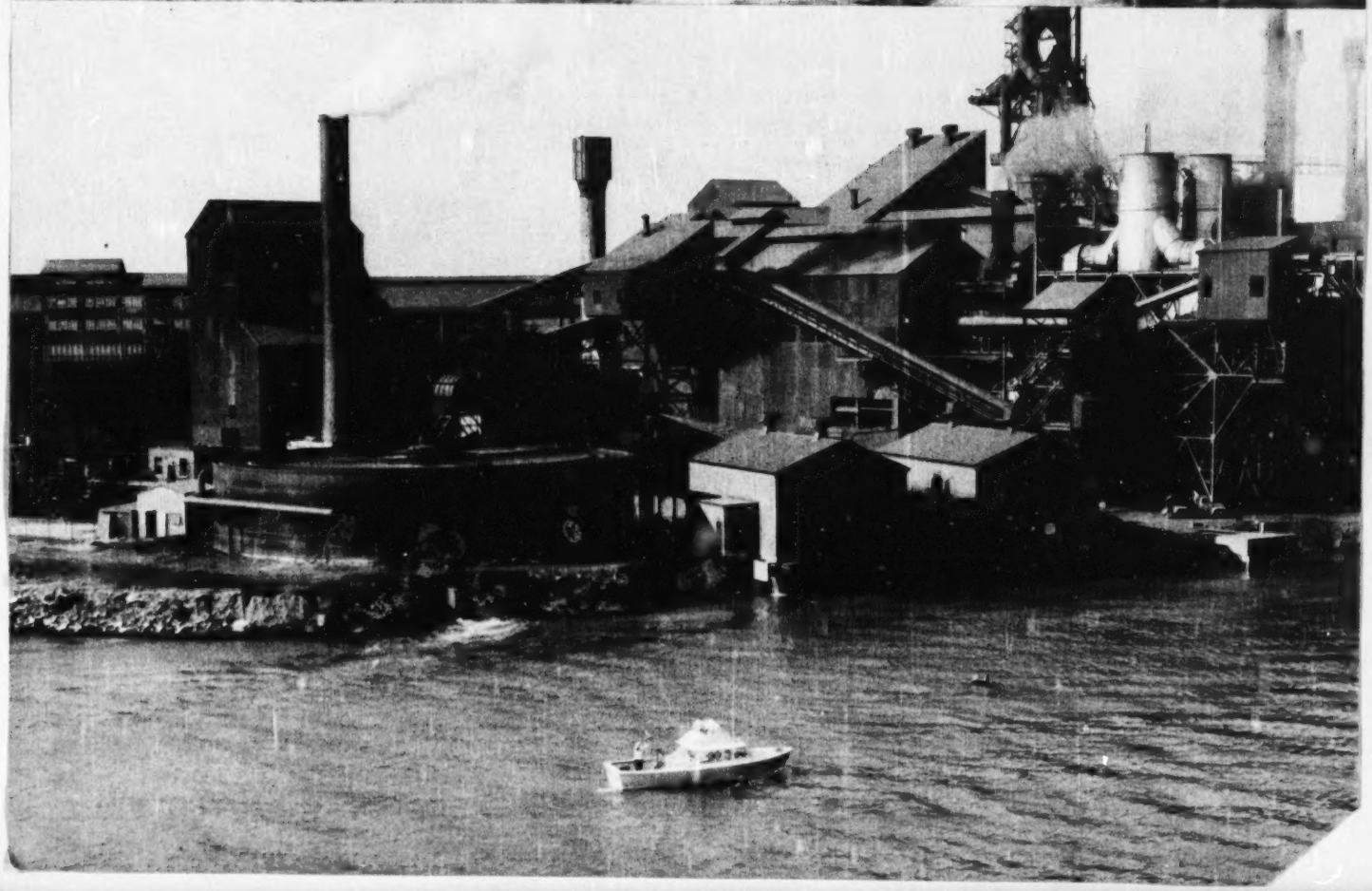
Accelerated Public Works supplemental funds appropriated by Congress for Fiscal Year 1963, added to the original appropriations, probably will result in an estimated total of 285 grants tendered. These grants will generate almost $96 million in eligible project construction costs.

During the fiscal year, there have been an average of 300 active projects; 200 field payment inspections; 85 sewage plants placed in operation; and over 1200 miles of stream improvement. The growth of the program in terms of funds and sewage treatment works projects is illustrated in the following graph.

SEWAGE TREATMENT WORKS CONSTRUCTION GRANTS PROGRAM IN REGION V FROM 1956-1963 SHOWING FISCAL YEAR APPROPRIATIONS AND NUMBER OF PROJECTS





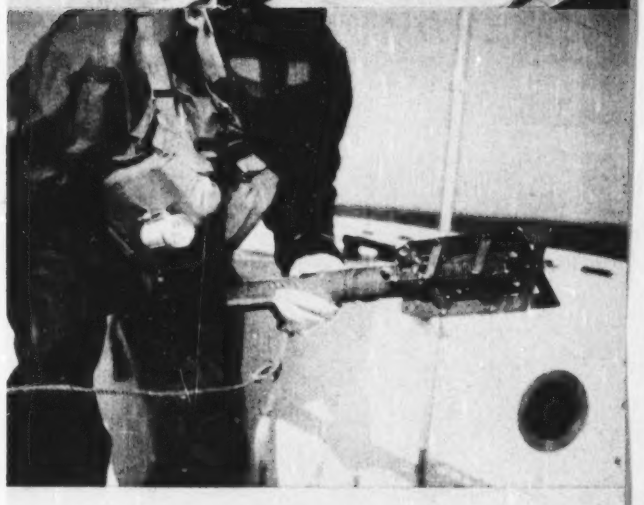


BASIC DATA — STUDIES — PLANS

The best approach to any major problem is to learn as much as possible about the subject. Basic data collection is the fundamental operation for any water pollution control program. Studies provide specific information for a wide variety of needs in enforcement or planning comprehensive water quality programs. Such programs serve as flexible tools to make the maximum use of our water resources.

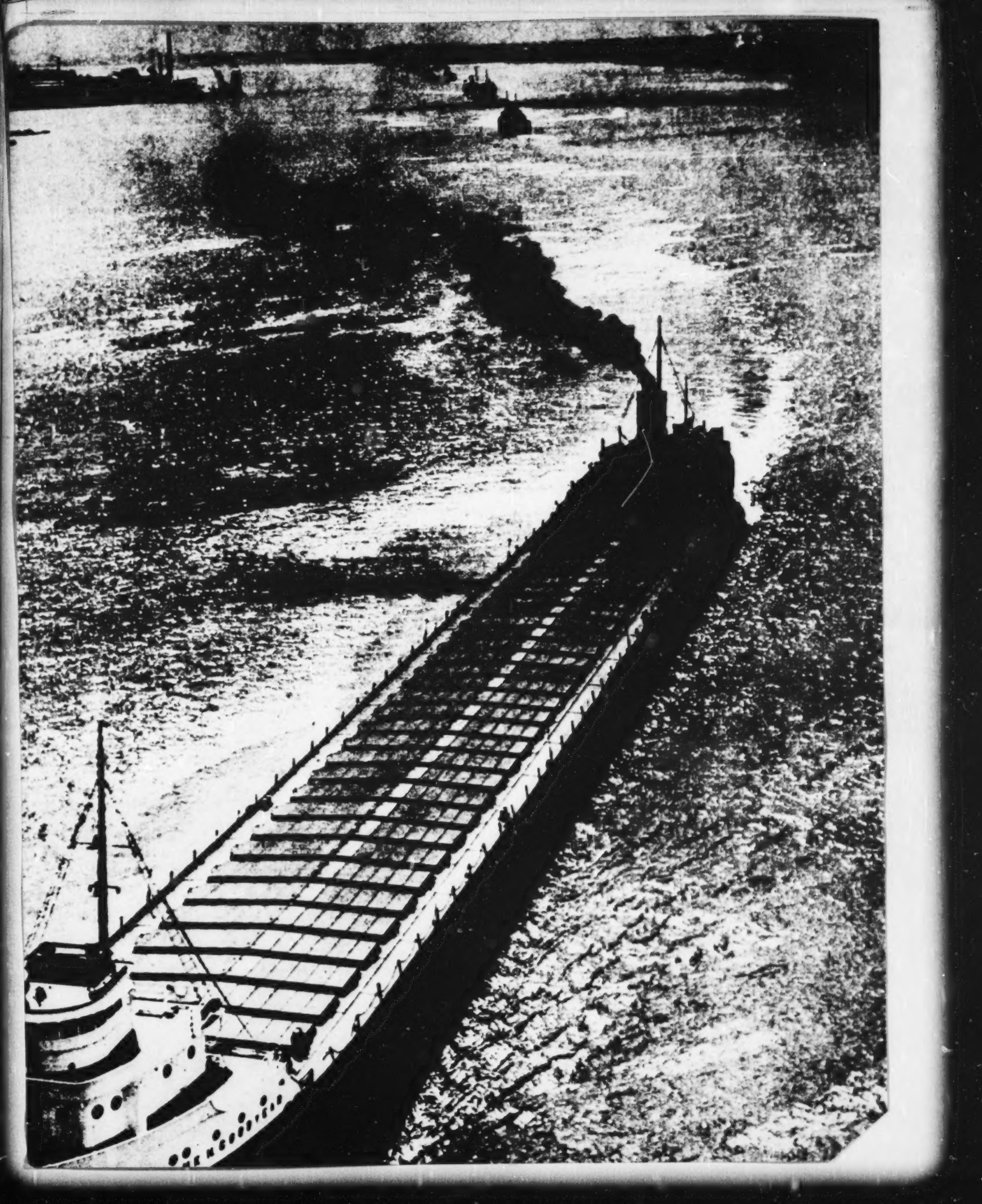
Basic data programs in Region V include not only inventories of water supplies and municipal and industrial waste treatment facilities in each State, but also water quality data on a continuing basis from 17 strategically located sampling stations in Region V. These stations are part of the National Water Quality Network, which provides long-term quality trends for the Nation's major watersheds.

Basic information on the effects of recreational uses on the water quality of an impounded water supply is the subject of special studies on reservoirs near Indianapolis and Bloomington, Indiana.



INTERNATIONAL COOPERATION

International treaty obligations on boundary waters are exercised through the International Joint Commission. The Public Health Service mans a field unit located at Detroit, Michigan, which is engaged in sampling and monitoring the international boundary waters in this area. Reports are made twice yearly to the Commission's Technical Advisory Board on Control of Pollution of Boundary Waters.



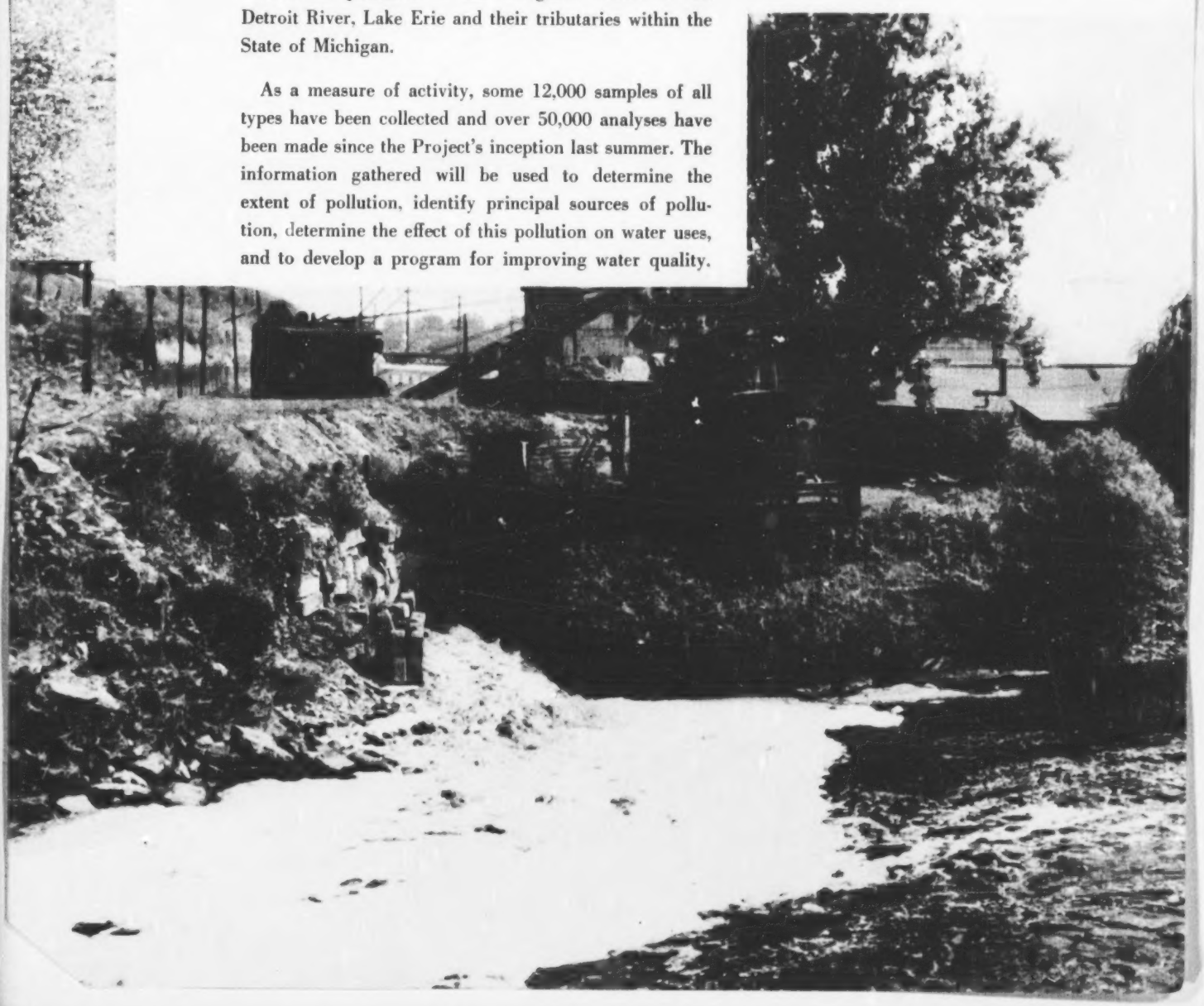
INDUSTRIAL WASTES

In the winter of 1962-1963, the eyes of the Nation were focused on the upper Mississippi River where major soybean and petroleum oil spills fouled over 130 miles of stream, killing or disabling thousands of ducks. The Governors of the States of Minnesota and Wisconsin requested and received assistance from the Department and a technical team surveyed the stretch and made recommendations for immediate and long-term corrective measures.

DETROIT RIVER-LAKE ERIE PROJECT

A major pollution study now underway is the Detroit River-Lake Erie Project which was established last year as the result of a joint Federal-State Enforcement Conference on pollution of the navigable waters of the Detroit River, Lake Erie and their tributaries within the State of Michigan.

As a measure of activity, some 12,000 samples of all types have been collected and over 50,000 analyses have been made since the Project's inception last summer. The information gathered will be used to determine the extent of pollution, identify principal sources of pollution, determine the effect of this pollution on water uses, and to develop a program for improving water quality.



GREAT LAKES-ILLINOIS RIVER BASINS PROJECT

Perhaps the most significant and widely known water pollution abatement study undertaken by the Public Health Service is the Great Lakes and Illinois River Basins Project. This is a 7-year $13 million comprehensive water quality management program specifically authorized by the Federal Water Pollution Control Act for those watersheds.

Work on the Illinois River Basin is esentially complete. A total of over 12,000 samples have been collected at the 65 stations on this watershed and over 90,000 analyses have been made. Very specialized and sophisticated techniques and equipment have been used, such as continuous dissolved oxygen recorders, carbon filters to gather organic materials, and intensive industrial waste sampling programs. Additionally, many special studies have been made and others are in progress now. These studies include a plankton algae study and enterovirus studies.

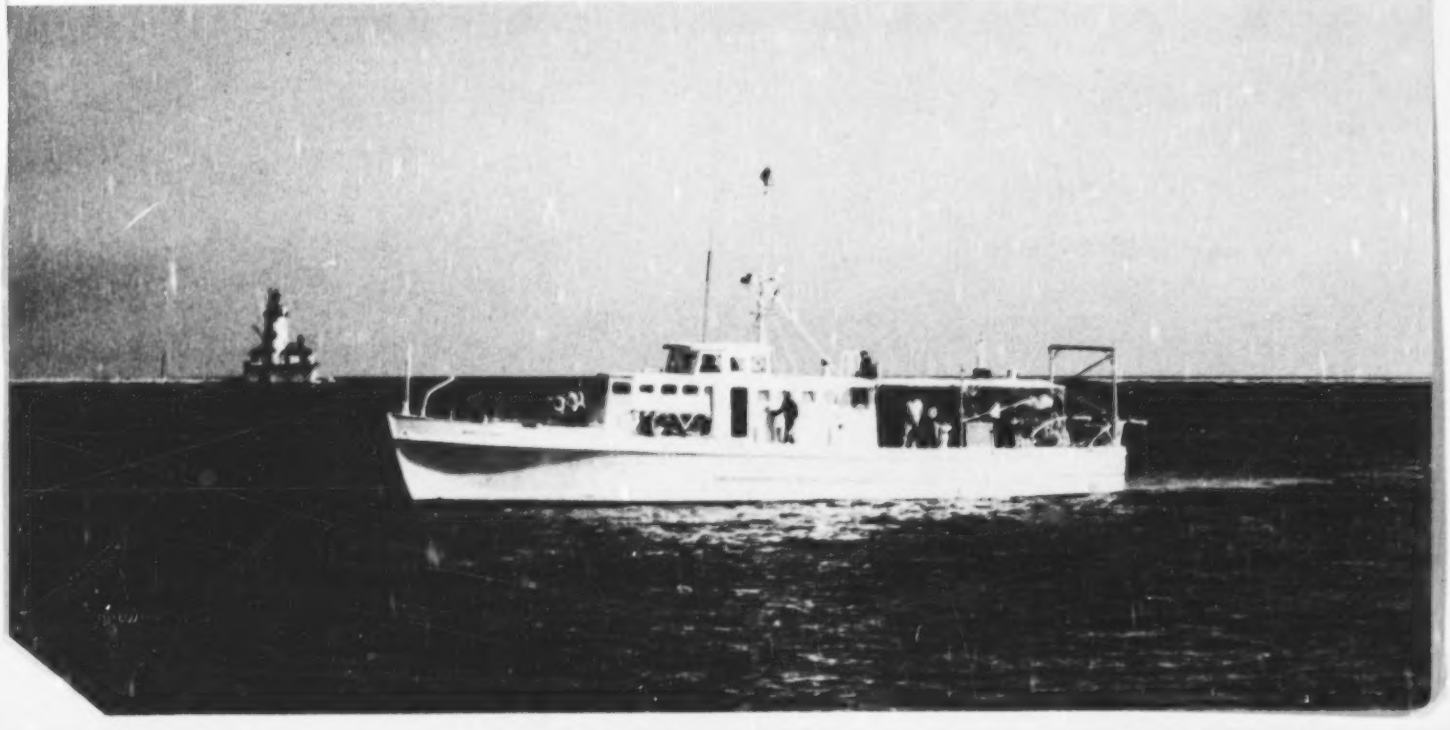
This activity has produced a great mass of data which is analyzed through the use of digital computers. The results are now being evaluated by the various scientific specialists on the Project staff.

The work done thus far on the Illinois River Basin has formed a base line for a major study of Lake Michigan which is now underway. During the past year, almost 15,000 samples from 474 stations in the Lake were collected. Some 400,000 analyses were made on these samples by the end of Fiscal Year 1963.

To study the Lake, a navy of ten large specially-equipped boats were used. Four of these boats, in addition to collecting water and bottom samples, were used to set out and service meters, which are measuring the currents in the Lake in order to determine waste dispersion patterns. To date, 12 stations involving 40 current meters have been placed. Several meters have been retrieved and data has been obtained from the memory systems in the individual meter capsules.

Water quality management reports are being prepared for each basin, and in addition, a series of special reports have already been published and submitted to the Justice Department for use in the Supreme Court Hearings on Lake Michigan Diversion at Chicago.

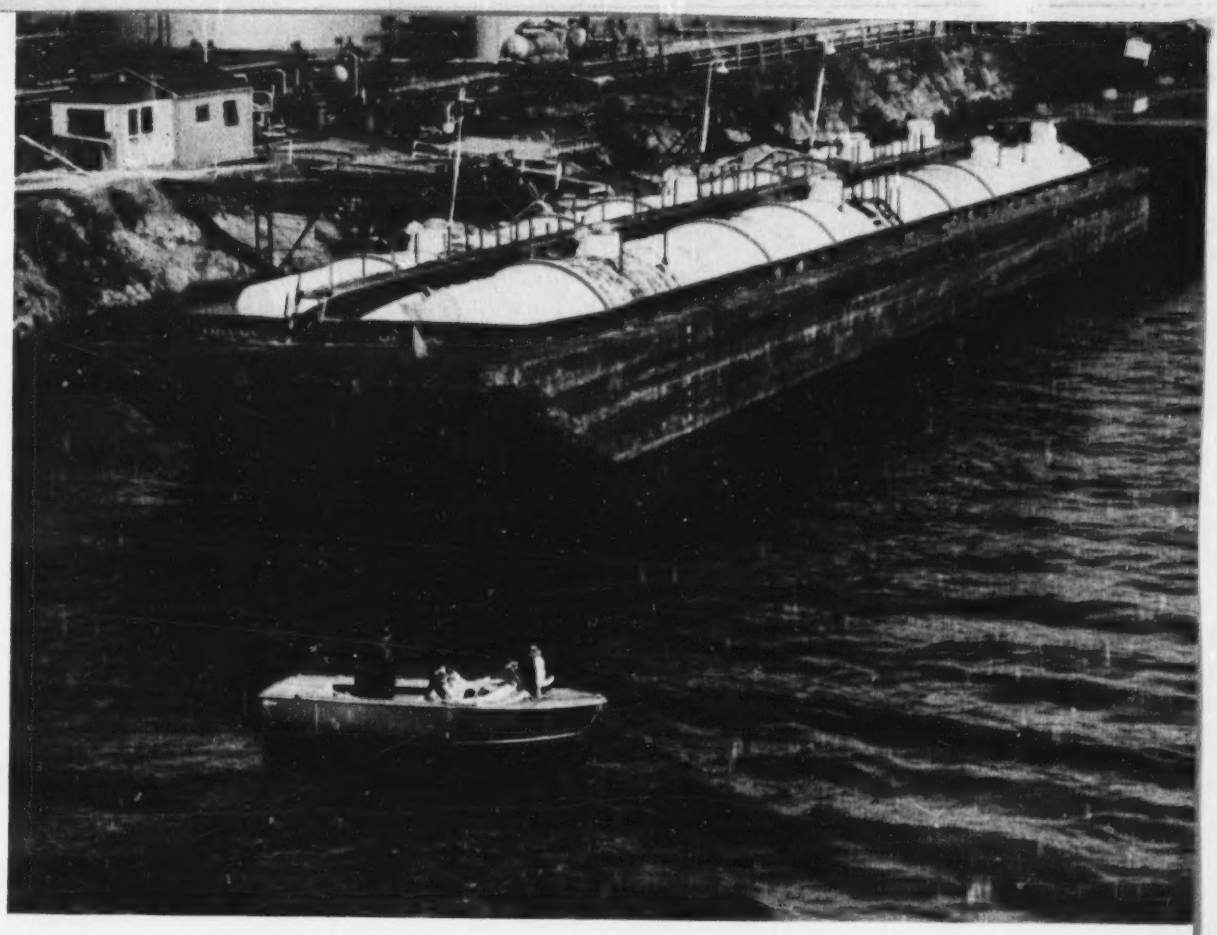
Although major emphasis is currently on Lake Michigan, the development of a water quality management program for Lake Erie is already underway. A field office and laboratory has been established at Cleveland, Ohio and sampling was begun on the Lake this spring. The other Great Lakes will each in turn be programmed. The present plan is to proceed from Lake Erie to Lake Ontario to Lake Huron, and finally to Lake Superior.



APPLIED RESEARCH FOR WATER POLLUTION CONTROL

The Regional Program is making significant applied research contributions. Enterovirus studies on the Illinois River, pesticides studies in Michigan, and field testing of such sophisticated bacteriological indicators of pollution as fecal streptococcus and fecal coliforms are a few examples of activities now being carried on. This is in addition to the basic research program in water pollution control underway at the Public Health Service's Robert A. Taft Sanitary Engineering Center in Cincinnati and on contract with various universities, colleges, and research establishments throughout the country.

A further indication of the importance of scientific studies in this Region was emphasized with the announcement in January by the Secretary of Health, Education and Welfare that Ann Arbor, Michigan had been selected as the site of a Regional Water Quality Laboratory.



ENFORCING POLLUTION CONTROL

Although many pollution situations can be resolved through informal means, in certain instances a formal enforcement action is the only recourse. Enforcement activity in Region V involves such major metropolitan areas as Detroit and St. Louis with water resources for a total of almost 6 million people being directly affected.

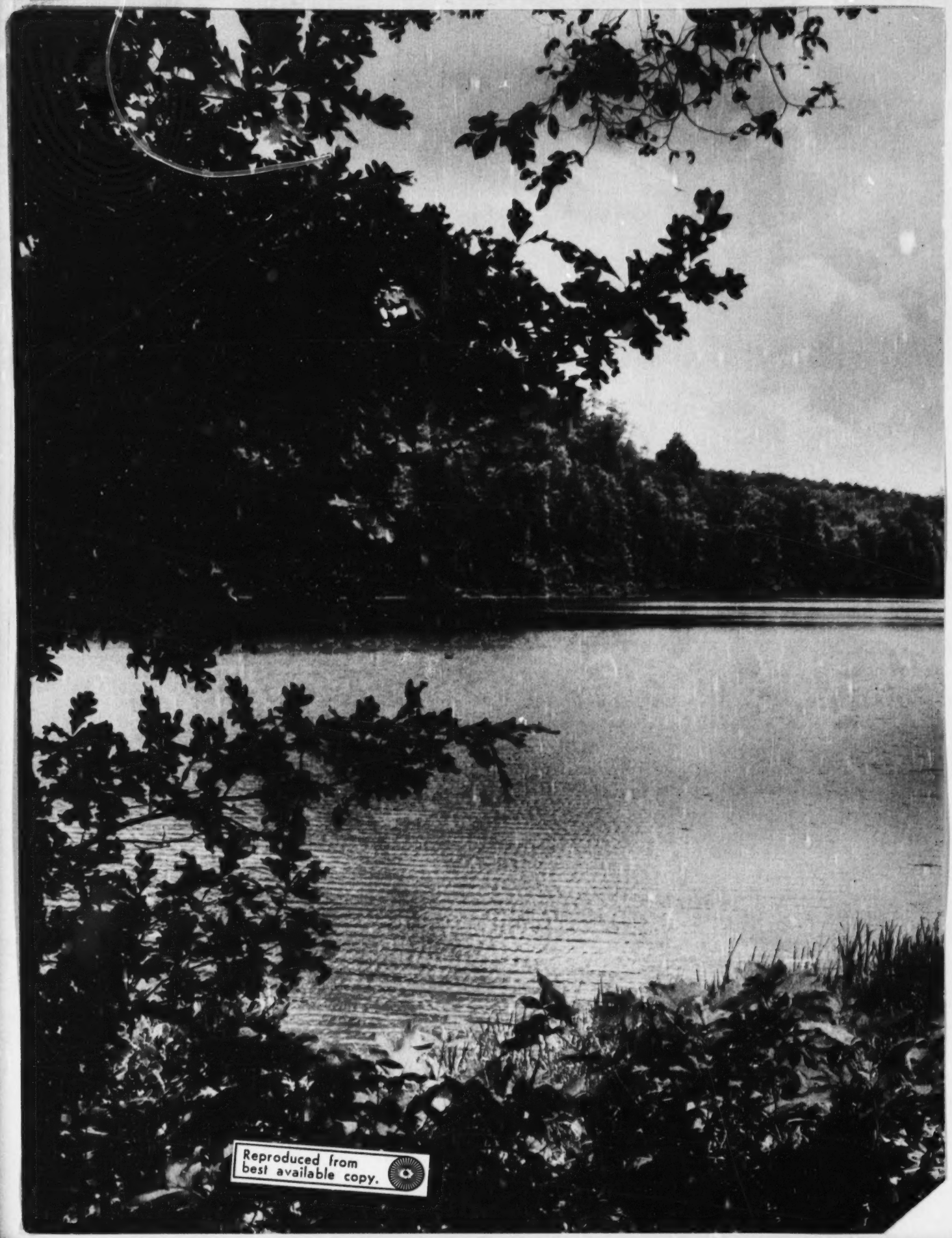
Some 20 actions have been taken throughout the country under the provisions of Section 8 of the Federal Water Pollution Control Act, as amended. Both interstate and navigable waters are included within the definition of this article. In addition, Section 9 of the Act includes specific reference to the Secretary's responsibility to cite Federal Agencies, having jurisdiction over installations causing pollution, in any summary of a conference pursuant to interstate or navigable stream action.

To date, three enforcement actions—all in the conference stage—have been called in this Region. Progress in pollution abatement has been significant where these actions have been taken.

- The Mississippi River and the St. Louis metropolitan area in Missouri and Illinois.
- The Mississippi River and the Clinton, Iowa and Quad Cities area in Iowa and Illinois.
- The Detroit River — Western Lake Erie and the Detroit metropolitan area in Michigan.

In both Mississippi River actions, progress may be measured in the millions of dollars earmarked for treatment plant construction—$95 million in St. Louis—$6 million in Clinton, Iowa. While the Detroit River-Lake Erie action is under intensive study, it is becoming apparent that the combined efforts of the various agencies involved are producing results with significant improvement noted in water quality for critical areas.

Of 2200 Federal installations located in the Region, 211 discharge treated or untreated wastes into the surface streams. An evaluation program is underway for all such installations.



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THE CITIZENS ROLE

During the past year, there has been much evidence of a growing public concern in the Mid-West with problems of water quality. Civic, women's, and conservation groups in many communities have shown their determination to stand behind local and state water pollution control programs and to support them.

An outstanding example of citizen interest was a TV documentary, "The Majestic Sea," a production of the local CBS outlet in Chicago. This 30-minute film highlighted the water problems in the Chicago area. It utilized to a significant degree on-camera comments by Public Health Service representatives. A similar documentary for the Detroit Metropolitan Area is presently being developed by the local CBS-TV outlet in Detroit and is expected to report in depth on the activities of the Detroit River-Lake Erie Project.

In like fashion, several articles have appeared on the national scene one of them was in the *Saturday Evening Post* which published, "The Great Chicago Water Steal." A widely reprinted article, "Aerial Photos—New Weapon Against Pollution" appeared in *Chemical Engineering*. In each, the activities of the Regional program were reviewed at length.

Newspapers have also given much coverage to various aspects of water pollution abatement, particularly the Great Lakes and Illinois River Basins Project. A noteworthy example was an article by Russell Lynch of the Milwaukee Journal which was reprinted and has received wide distribution.

Personal contacts are made through presentation of prepared talks and films by various staff members to a great variety of organizations interested in the cause of clean water. These presentations have been made to national conventions such as the American Society of Civil Engineers and the National Conference of Plant Maintenance Engineers and to State, Regional and local meetings of such groups as the Illinois Public Health Association, and the Izaak Walton League of America. Regional staff personnel have participated in sewage treatment works dedications and appeared before local service groups like Lions and Kiwanis Clubs to encourage the citizens interest in clean water.

Over 36,000,000 persons live in the five midwestern States of Illinois, Indiana, Ohio, Michigan, and Wisconsin. However, in 1962 it took 11-year old Lisa Funsten of Wilmington, Illinois to make the most persuasive, most telling appeal for water pollution abatement and for the protection of Mid-Western waters.

In a letter written to President Kennedy, which was widely reprinted by news services, young Miss Funsten wrote about the Kankakee River:

> *"I would like to tell you about our river. We live on it and it's a nice river, but it's pretty dirty. Nobody respects it. They throw their garbage in the river and everything. I would like to know if you would talk to somebody to clean it."*

Miss Funsten's letter received a quick reply from H. W. Poston, Regional Program Director of the Public Health Service's water pollution control program. "The Federal government and the State of Illinois," Mr. Poston wrote, "shares Lisa's interest in the Kankakee and in clean water. The Kankakee is included in one of the principal water quality studies. The results of this study will assist the State of Illinois in developing the best possible program for users of the Kankakee River. Your State has taken an active interest in the quality of the Kankakee River and is taking steps to enforce the clean-up of the river."

GPO 802–432–2

...SWEEP RIVER ...TO AID DUCKS

St. Paul, April 6 (AP)—National ...guardsmen in amphibious ve... ...hicles swept the Mississippi ... river north of Red Wing today ... to pick up drifting soybean oil ... and petroleum coat still posed ... a threat to migratory ... fowl.

Guardsmen, ordered ... by Gov. Karl Rolvaag ... has estimated 10,000 wild... been killed by the ... a swing gate—a c... of a cable d... —to ...

Survey Sco... Pollution Link to Virus Infectio...

BY WALTER SUTHERL...
Chemical detectives ... United States Public ... service are seeking to ... possible connection ... virus infections an... waters of the Chica... area and Lake Mi...
The survey ... with en...

U. S. to Probe River Pollution

Pioneer Press
Washington Bureau

WASHINGTON—A federal inspection team will begin work on the upper Mississippi river today investigating the oil pollution which has killed thousands of ducks.

The team—composed of a public health service scien... tist, two engineer... biologist—...

A TIME T... FOR 40-MILE ... CLEANING-U...

Water 'Undesir... For Civic U...

By Gene Raffens...
(Register Staff W...

CLINTON, IA. ...
al health official... Thursday that ... River pollution ... on and Rock ... such that rive... desirable as a ... cipal wate... ecreation.
Philip J. ... anitary e...
Public ...

U.S. TO KEEP CLOSE WATCH ON ANTI-POLLUTION PROGRESS HERE

MSD Is Making 'Real Progress,' Federal Official Says — Penalties for Delay Are Cited.

The Metropolitan Se... trict is making satisfa... gress in its Mississippi ... lution abatement pro... the Federal gover... watch the project clos... sure its completion b... Public Health Servic... said today.

Peter Kuh, attorney ... servec's chief enforc... ficer, told a meeting ... health and pollution ... and MSD officials that ... could expect continue... scrutiny because it is ... city in the nation witho... treatment facilities.

Kuh, of Washington, said t... MSD had made "real progress ... to date. He cautioned, however ... that because national water re... sources could reach a critical ... state by 1980, the Government ... is prepared to take punitive ac... tion in any of 18 areas subject to ... the Federal Water ... Control Act.

REPORT CITES POLLUTION FOR DEATH OF FISH

Health Service Says 7 Million Killed

Washington, May 27 (UPI) — More than 7 million fish were killed last year by factory and city wastes and agricultural poisons dumped into the nation's rivers and lakes, the public health service reported today.

Based on reports from 36 states and the district of Columbia, the service said about one-fourth of those killed were game fish, two-thirds were forage fish, and one-tenth were trash fish.

Most of the 7,118,000 fish were poisoned in rivers, the service said. It blamed domestic sewage for the greatest number of deaths. The service said 53 per cent of the contamination in lakes and rivers came from factories, 45 per cent from local communities.

Chief Cause in 1961

Agricultural poisons—... a chemical that ... into a creek ... spray...

U.S. Launches 2½-Year Study Of Pollution In Lake Erie, Tributaries

Local, State Groups' Aid, Information Sought In Survey Aimed At Preventing Unnecessary Contamination

...RT SAUNDERS

...be restored to their ...aced p... to prevent ...llution ...ne, -It'...
...intr...

Area's Anti-Pollution Efforts Meet U. S. Goal

Except for ... Reports from area officials ... cated that program... lution of the ... pr...

SHIP DUE HERE FOR POLLUTION STUDY IN LAKE

Public Health Service ...iduct Survey

...ice F. Fitzgerald, a ...quipped ship, is ex... Chicago today or to... engage in water pol... ...ies of Lake Michigan ...United States public ...vice, it was disclosed ...n is 83 feet long, 16 ...

SEWAGE SHUTS MANY BEACHES OF LAKE CITIES

Federal Records Bare Pollution Peril

(Picture on back page)
BY WILLIAM KLING

Use of the Great Lakes as ... sewage dumps has closed the ...

...lton Box Board Co. is planni... ...oject to reduce solids by ...ent and cut flow by 40 p... Morton said, and a stu... under way to prepare f... ...n of the works. Constru... start this fall, Mort...

...thieson Chemical Co... ...d a treatment plant ...ss Mill plant, and ...tudy of reduction ...ste discharge in ...t property.

...rs Conection
...ion to the mu... ...m in East Alt... ...d by Olin, Mc...

Help Asked on Pollution

US Fund Is Sought in Effort Toward Safe...

...ates Ask U.S. Fight on Polluti...

© New York Times Service

WASHINGTON—Federal intervention this ... water-pollution enforcement actions ... beginning of a new era in cleaning up ... ...s and streams.
...federal assistance in for... ...by Gov. John B...

Pollution Hearing Set Here March 8

...terceptor sewer system to help ...ease the pollution problem.
Housr said he did not see th... ...eport by the federa...